Michigan Department of Natural Resources and Environment
Wildlife Division

Ruffed Grouse Drumming Survey
Preliminary Results[a]

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[a]The results will be final when the annual ruffed grouse status report is published.

Introduction

Like many wildlife species, ruffed grouse breed in the spring. Males create a well-known springtime drumming sound by rapidly beating their wings while standing on a stationary object. They start slowly and it sounds like loud thumps at first, but as the wings build up speed it sounds like a drum or a 2-cycle engine starting. The sounds are created by the compression of air between the birds' bodies and their wings.

The Wildlife Division takes advantage of this spring ritual by conducting roadside routes to count the number of drums heard. Routes were established in locations of known grouse populations. Each route has ten listening stops that are consistent from year to year. The number of ruffed grouse drums heard during a fixed time interval (four minutes) is recorded at each stop. Data are summarized as the number of grouse heard per survey route.

Preliminary Grouse Drumming Results for 2010

Ruffed grouse drumming counts were conducted statewide along 106 survey routes in April and May 2010 (Figure 1). Due to personnel constraints, the ruffed grouse drumming survey was not conducted statewide in 2009. In 2008, 109 survey routes were conducted statewide.

A paired t-test was performed using data from 98 routes run in both 2008 and 2010. Statewide there was no difference ($P=0.19$; $t=-1.3$) between the average number of drums heard per route between 2008 (14.5) and 2010 (13.3).

Analysis at the regional scale (Figure 2) indicated there was no significant difference ($n=44$; $t=-0.5$, $P=0.63$) between the number of drums heard per route in 2008 (10.1) and 2010 (10.5) in Zone 2. However, there was about a 17% decline in the average number of drums heard per route in Zone 1 (Upper Peninsula) between 2008 (19.4) and 2010 (16.1) ($n=47$; $t=-2.1$, $P=0.04$).

Although drumming routes were not conducted statewide in 2009, 42 drumming routes were run in the Upper Peninsula and 2 routes were run in the northern Lower Peninsula to monitor local populations. A paired t-test was performed using data from 41 Upper Peninsula routes run in both 2009 and 2010. There was about a 17% decrease ($P=0.04$) in the average number of drums heard per route between 2009 (18.0) and 2010 (14.9). Because routes were not conducted in Ontonagon and Gogebic counties in 2009, results do not represent those counties.

Ruffed grouse populations have exhibited ten-year cycles in abundance over much of Canada, Alaska, and the Great Lakes states of Wisconsin, Minnesota, and Michigan (Rusch et al. 1999).

Many factors affect grouse populations including changes in habitat and food availability. It is unclear why the population cycles occur, but many theories have been proposed (Rusch 1989). With favorable production this past spring, fall ruffed grouse numbers may be similar to last year.

Literature Cited

Rusch, D.H. 1989. The grouse cycle. Pages 210-226 *in* S. Atwater and J. Schnell editors. Ruffed Grouse. Stackpole Books. Harrisburg, Pennsylvania, USA.

Rusch, D.H., J.R. Cary, and L.B. Keith. 1999. Pattern and process in ruffed grouse cycles. Midwest Fish and Wildlife Conference. 61:238.

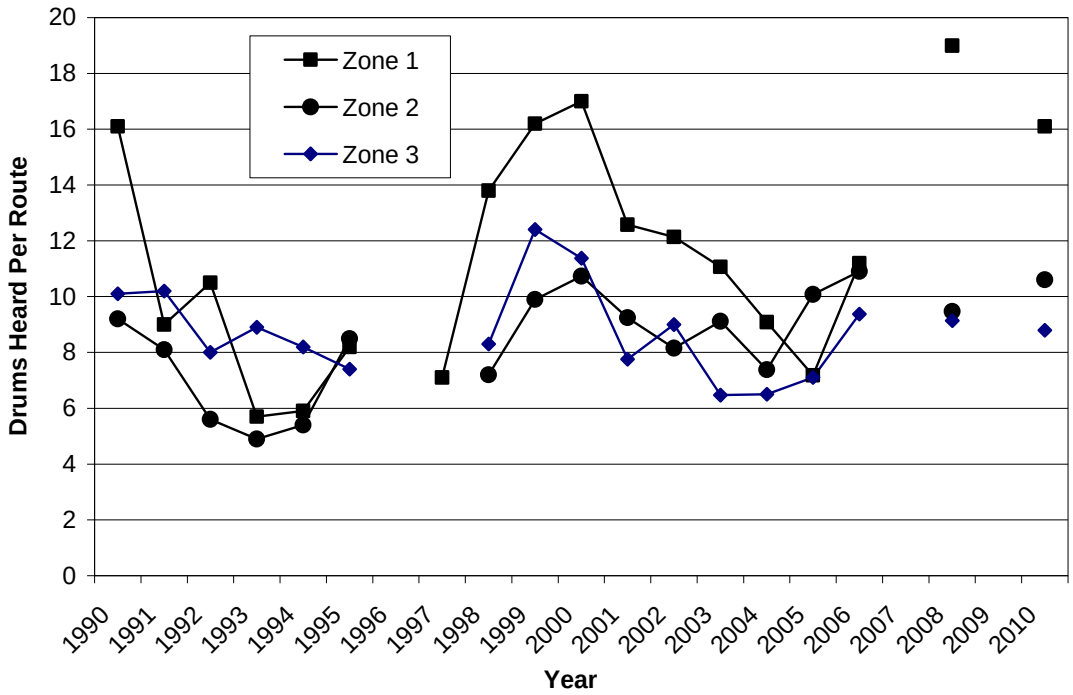

Figure 1. Ruffed grouse breeding population index (drums per route) in Michigan, 1990-2010. Drumming surveys were not conducted statewide in 1996, 2007, and 2009, and were conducted only in Zone 1 in 1997.

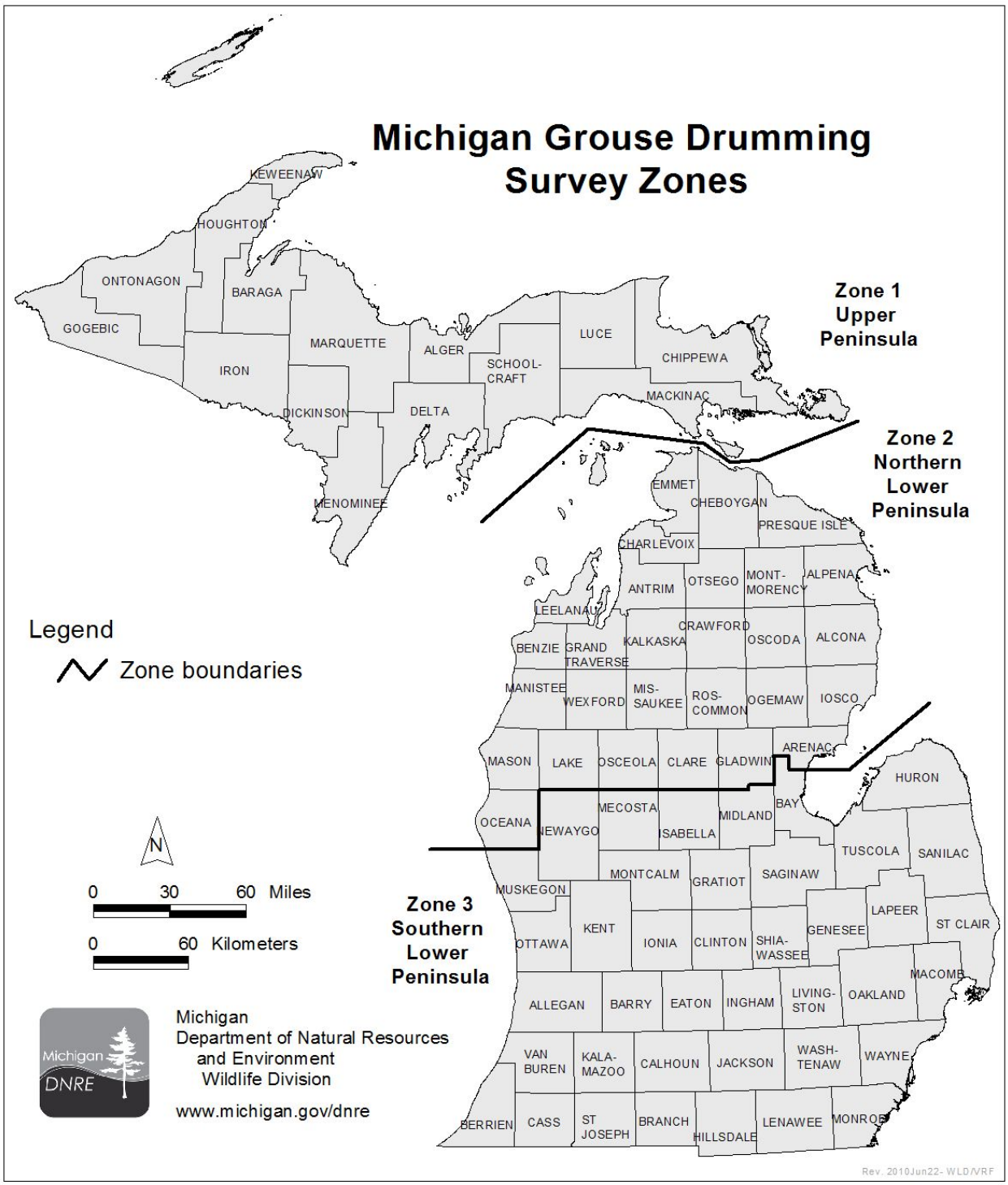

Figure 2. Zone boundaries for the ruffed grouse drumming survey.